IMPROVING THE CHARACTERISTICS OF A CYLINDRICAL RADIANT BURNER BY MODIFYING THE COMPOSITION OF THE FUEL MIXTURE

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Abstract: The dependences of the CO/NOx concentrations in flue gases as well as the radiation efficiency on the air–fuel equivalence ratio and firing rate for a hollow cylindrical burner from an intermetallic Ni–Al alloy run on natural gas–air mixture with addition of hydrogen and oxygen have been experimentally investigated. It has been established that modification of the composition of the natural gas – air mixture allows extending the lean limit for the internal combustion mode when the flame is localized under the surface of the burner. Compositions of fuel mixtures that allow a decrease in CO emission by several times at a low firing rate and two-fold decrease in NOx emission at a high firing rate on retention of radiation efficiency are discussed.

Keywords: radiant burner; infrared burner; porous burner

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